



# DEVELOPING DOCTORAL RESEARCH SKILLS FOR WORKPLACE INQUIRY

USING AN INTEGRATED METHODOLOGY

David Plowright

## INTRODUCTION

The role of academic and scholarly research, including that undertaken for a postgraduate research degree, has changed in its emphasis. It is no longer restricted to the production of inward-looking disciplinary scholarship but to useful, instrumental knowledge that can be put to good use to address workplace issues and real-world problems. Indeed, Weber (2011:526) points out that in the knowledge society, even “scholarship must serve the requirements of the national economy in becoming more globally competitive”. Thus, research will inevitably suffer from “[t]he dominant global narrative of neoliberalism [that] underpins what has become known as the knowledge economy, where knowledge is valued for its economic worth rather than its intrinsic good” (Le Grange 2012:1133).

This, of course, raises important questions about the role played by universities in the knowledge society: should they be concerned primarily with, on the one hand, the reproduction and transmission of knowledge and culture or, on the other, the transformation of that knowledge for the benefit of society (Delanty 2001)? It is a distinction that is currently a pressing issue for universities in South Africa where “[b]oth reproductive and transformative tendencies can be identified in varying degrees” (Reddy 2004:42). Indeed, at the time of writing, the current student unrest across the country reflects the pressure on higher education to play its role in social and democratic change.

At a more micro-level, there is a need for rigorous, well-managed and effectively-executed research, both inside higher education and in the public, private and not-for-profit sectors. This is especially the case with PhD study, since doctoral education plays an important part in the contribution that universities can make to the development

## **PART FOUR • INNOVATIONS IN POSTGRADUATE SUPERVISION**

of society and the creation of new knowledge (Jansen 2010). However, this chapter argues that such research needs to be reconceptualised in order to overcome the “methodological and epistemological conservatism” (Herman 2010:504) existing in South Africa. This implies that a traditional view of disciplinary, academic research, including that aimed at achieving a postgraduate qualification, does not always fit well with the kind of research that leads to useful, practical solutions. Indeed, there is some evidence that private-sector employers in South Africa believe that a PhD does not have much relevance to the world of work (Treptow 2013). This would suggest that a more appropriate qualification might be the professional doctorate, which is yet to be implemented in South African universities. Although this is a contentious issue, the aim would be to integrate “theory with practice through the application of theoretical knowledge to highly complex problems in a wide range of professional contexts” (RSA DHET 2014:41). This may also go some way to addressing Jansen’s (2011) concern that social science and the humanities make excessive claims for practical significance over understanding.

What is needed, therefore, is a manageable approach – practically and conceptually – that can be applied to a range of different contexts and doctoral qualifications. This chapter argues that the use of an integrated methodology based on Plowright’s (2011) FraIM has the ability to make a contribution to meeting the needs of academic and workplace research that is both useful and methodologically rigorous. The FraIM is equally applicable to both PhD study and the professional doctorate.

## **DOCTORAL RESEARCH**

Whatever the purpose, one thing all research has in common is the requirement to employ appropriate research methods and methodologies. But there are serious confusions around how we think, talk and write about this element of the research process (Plowright 2013). Students’ understandings are not helped by most textbooks that still tend to reinforce a polarised view and explanation of research methodologies through a continuing use of qualitative and quantitative distinctions. A brief summary of traditional approaches to research thinking is shown in Table 14.1. The information in this table is seen in various guises in many texts but it is incorrect and therefore misleading. Indeed, some authors even go so far as to argue that researchers should initially decide whether their research is either inductive or deductive and thereafter make appropriate methodological decisions. However, as Plowright (2016) shows, firstly deduction generates the research hypotheses or questions. Secondly, induction is the actual testing process, using procedures to collect empirical data that will inform the research conclusions. Further, experimental

CHAPTER 14 • DEVELOPING DOCTORAL RESEARCH SKILLS FOR WORKPLACE INQUIRY

and observational research can collect both qualitative and/or quantitative data. The distinction, therefore, that methodology texts make between the two different types of research is unfounded, either theoretically or in practice.

TABLE 14.1 Traditional approaches to research

	TRADITIONAL APPROACHES TO RESEARCH		
	Experiment and Observation	Case study	Mixed methods
Methods	Quantitative	Qualitative	Both
Data	Quantitative	Qualitative	Both
Inference	Deductive	Inductive	Both
Aim	Test theory	Develop theory	Both
Philosophy	Positivism	Interpretivism	Pragmatism

MIXED METHODS RESEARCH

In addition, the use of and interest in a mixed methods approach to undertaking social science research has recently become more widespread (see, for example, Gorard & Taylor 2004; Plano Clark & Creswell 2008; Tashakkori & Teddlie 2010). However, even the increasing number of textbooks specifically focusing on the use of mixed methods research continues to draw on a traditional paradigmatic explanation. As Table 14.1 indicates, mixed methods research relies on the application of well-used principles, methods, types of data, inferences and aims in research. Indeed, despite claims that using mixed methods frees researchers from the constraints of paradigmatic thinking, it “can actually reinforce the binary positioning of the qualitative and quantitative paradigms” (Symonds & Gorard 2010:133). Definitions and explanations of mixed methods reinforce this view. For example:

A mixed methods study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research (Creswell, Plano Clark, Gutmann & Hanson 2003:212).

The use of traditional opposing perspectives can be seen in Morse’s definition, which states that mixed methods involves... “[t]he incorporation of various qualitative or quantitative strategies within a single project that may have either a qualitative or quantitative theoretical drive” (Morse 2003:190).

So, despite claims to the contrary, a mixed methods strategy is firmly embedded within traditional research paradigms, perspectives or traditions. Such traditions are represented by the ‘Q words’, which are plagued by conceptual, methodological

## **PART FOUR • INNOVATIONS IN POSTGRADUATE SUPERVISION**

and axiological difficulties. In addition, their use is fraught with micro-political and intellectual struggles associated with the privileging of particular structures of knowledge. Therefore, it may be time to ban the 'Q words' and in their place, develop a new conceptualisation of the research process. Such an alternative approach needs to be based on characteristics of coherent integration and not just mixing or combining different approaches to research. Thus, the challenge is to offer an approach that will be appropriate for scholarly empirical research and at the same time be applicable to the demands of undertaking workplace research in the public, private and non-profit sectors. The approach recommended here is that based on the FralM, which is described in detail in Plowright's (2011) *Using Mixed Methods: Frameworks for an Integrated Methodology*. One of the main characteristics of the FralM is the rejection of the use of the 'Q words' with their confusing philosophical and conceptual pedigree.

### **THE FRaIM: A BRIEF DESCRIPTION**

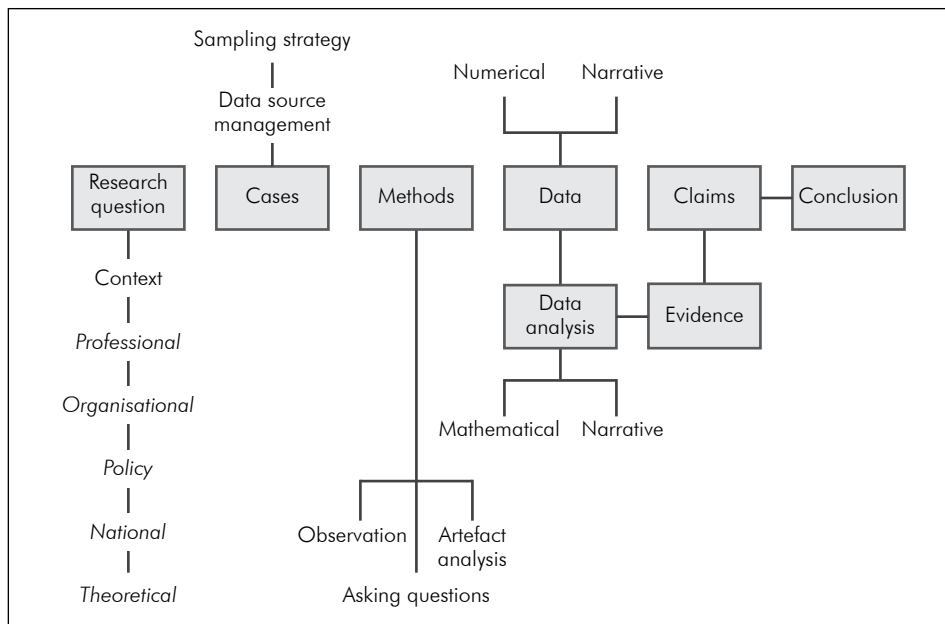
The FralM, shown in Figure 14.1, is the overall design of the research project. The basic structure is relatively straightforward. It is appropriate for carrying out small-scale empirical investigations that are aimed at evaluating, developing and improving an understanding of practice. It can be applied to doctoral research undertaken for a programme of study in a university setting. It can also be deployed to solve problems in a variety of professional, vocational and workplace contexts and locations.

#### **The research question and its contexts**

The FralM begins with the main research question that has a central role in research that systematically employs empirical data to answer the question (Punch 2009). The centrality of the research question is an important strategy for locating South African PhD studies in the global knowledge society (Simmonds & Du Preez 2014). In addition, the question is formulated within a number of different contexts and these can include professional, organisational, policy, national and theoretical contexts. Usually, a traditional view gives prominence to contextual factors only in qualitative research (Stephens 2009). The FralM, however, argues that context is important for all research and especially that aimed at evaluating, developing and improving an understanding of practice in the workplace.

The professional context provides information about the researcher and the subject or professional area within which the research is undertaken. This part of the research report also provides an opportunity to explain why a particular topic or subject is

## CHAPTER 14 • DEVELOPING DOCTORAL RESEARCH SKILLS FOR WORKPLACE INQUIRY



**FIGURE 14.1** The FraIM (Source: Plowright 2011:9)

the focus of the research. For example, the project may be located in the health area, with a focus on, say, the topic of MDR-TB (multidrug-resistant tuberculosis) issues. This section would also provide an opportunity to include information about the researcher's previous experiences or their current role that may have led to undertaking the inquiry.

The research may take place in a particular organisational context. The size of an organisation may have an impact on the type of research that might be undertaken. An organisation consisting of only a handful of staff might restrict the research. Alternatively, this may be an advantage. For example, in a small school the impact of whole-school policies would be easier to research. Staff may be more accessible, due to the small numbers in the school. On the other hand, the context may provide different opportunities if the organisation were, say, a large university.

Different organisations have different cultures and it may be important for the researcher to be aware of the nature of the culture in which the research will be undertaken. In other words, the organisational context may foreground issues around insider and outsider research (Hellowell 2006).

## **PART FOUR • INNOVATIONS IN POSTGRADUATE SUPERVISION**

### *Policy context*

All social research takes place in a policy context (Clough & Nutbrown 2002). It is likely, therefore, that taking the policy context into consideration will inform the researcher's understanding of the issues being investigated. It may also help to formulate more appropriate research questions.

### *National context*

Not all research needs to *explicitly* take into account the national context. However, we are living through a massive expansion of globalised communication. What happens in one part of the world can have an impact on other parts. In addition, research reports in journals or books frequently have an international audience. That audience will need information about the national characteristics of the location in which the research was conducted. This might include the social and economic structures, the culture and the history of the area.

As with the policy context to the research, the national context may partly determine the research questions, even if those questions are derived from a theoretical perspective. For example, the research may be looking at the post-modern issue of identity and be located in a low-income, rural area of South Africa (Plowright & Plowright 2008). It would be important to provide the national context to research of this nature since it is directly linked to the research focus.

### *Theoretical context*

The theoretical context is the conceptual framework. It starts with a literature search that involves collecting, reading and critically analysing a range of publications on the chosen topic or subject. It shows what other authors, scholars and researchers have written about the topic and will provide theoretical perspectives that can help a researcher think through exactly what will be investigated (Trafford & Leshem 2008). How much emphasis is given to this element of the research report will, of course, depend on the purpose of the research and, more importantly, its readership. Even with a workplace research project, including reference to appropriate literature will signal that the research is well-informed and thus give it an increased credibility.

### *Balance*

The balance, emphasis and relevance of each of the different contexts will vary across different research inquiries. At times, the professional/personal context may be important since the research might be based on the researcher's own past or current experience and interests. This is more likely to apply to doctoral research, rather than as a result of the demands of undertaking research that is required or

CHAPTER 14 • DEVELOPING DOCTORAL RESEARCH SKILLS FOR WORKPLACE INQUIRY

commissioned by an organisation. At other times, the organisational context will be a priority if, for example, the research is about corporate finances.

Case selection

Usually, case selection involves justifying and implementing the sampling decisions used in the research. However, the FraIM includes two major stages: the first is the data source management followed by the second stage, the sampling strategy.

Data source management

Data source management does not figure prominently in the methodology literature. This is surprising, since it is a useful mechanism for making initial decisions about selecting research participants or cases. In addition, introducing an additional stage into the process can provide insights into how such decisions can be explained and justified in relation to case selection.

Data source management consists of three choices: (1) experiment, (2) survey, and (3) case study (Hammersley 1992). The criteria on which these rest are the number of cases, the degree of control that the researcher has over which cases are allocated to which groups in the research, and the degree of naturalness, that is, the ecological validity, of the groupings. Table 14.2 shows how these three dimensions can be mapped against data source management decisions.

TABLE 14.2 Data source management characteristics

	Experiment	Survey	Case study
Degree of control	High	Medium	Low
Numbers	Medium	High	Low
Ecological validity	Low	Medium	High

There is no space here to discuss each of the items in Table 14.2. However, the underlying ideas in the matrix of characteristics for data source management challenge a number of received arguments about the research process. For example, on the one hand, it is often claimed that an experiment is the only design that can lead to making any claims about causation between variables. On the other hand, a case study approach does not allow for generalisation from a sample to a population. Table 14.2 challenges both these claims. For example, experiment has low ecological validity. This is because there is a poor match between the artificiality of the contrived assemblage of cases in an experiment and the real-life situation and population such a sample purports to represent. The causative effects will, therefore,

## **PART FOUR • INNOVATIONS IN POSTGRADUATE SUPERVISION**

be restricted to the research situation and it may be a risk to generalise beyond the boundary of the research.

Discussion in the literature about case study is sometimes unhelpful. The traditional argument is that case study draws on small samples and collects qualitative data in order to make claims through the process of induction. This, it is argued, leads to a loss in ability of the research to generalise the results to a larger population. There is a contradiction here. As Charles Sanders Peirce, the founder of pragmatism and a lifelong logician, pointed out: "Induction is where we generalize from a number of cases of which something is true, and infer that the same thing to be true of a whole class" (Hartshorne & Weiss 1932:624).

Analysis of numerical data often relies on statistical induction using small samples to inductively generalise to larger populations. In addition, conclusions from a case study can be useful for "fuzzy generalisation [where] something has happened in one place and ... it may also happen elsewhere" (Bassey 1999:52).

### *Sampling strategy*

The second stage in case selection is the sampling strategy employed in the research. This process will include making decisions about and justifying who or what the cases/participants are, how they were selected, why they were selected and how access was gained and maintained.

Depending on the research problem or question, the contexts, the location and the purpose of the research, the researcher may have limited choice in who or what the cases are. This is especially so with workplace research where the focus may be on a particular group of participants. For example, the research may be about the incidence of RSI (repetitive strain injury) problems experienced by laptop users compared with those who use a desktop PC in an organisation. Allocation of participants has already occurred since they occupy self-selecting groups due to their use of the different technologies.

It is probably true to state that most workplace research is undertaken using convenience and purposive sampling strategies. This is due to the small-scale nature of the research and the need to address a specific issue identified in a particular location. There is often no need, nor would it be appropriate, to seek cases outside of the organisation. Of course, wherever the research is undertaken, randomisation might be built into the selection process if the total number of participants in the organisation is too large for the researcher to manage. A simple random sample or systematic random sample from each of the two groups in this example about RSI, could, therefore, be selected.



## CHAPTER 14 • DEVELOPING DOCTORAL RESEARCH SKILLS FOR WORKPLACE INQUIRY

The important point about case selection as part of the FraIM is that decisions about choice of participants will need to take into account not only the sampling strategy but also the data source management. With each of the three data source management approaches, the researcher can draw on decisions about sampling strategy in order to allocate cases either probabilistically and/or non-probabilistically. Note, however, that it is not just a matter of either/or. An integrated methodology encourages all sampling strategies to be included in data source management decisions.

### **Methods of data collection**

There are three different generic methods of data generation and collection: observation, asking questions and artefact analysis. All methods of data collection can be subsumed within these three generic approaches. Researchers will be familiar with observation and asking questions but less so with artefact analysis. An artefact might be a radio or TV programme or perhaps the presentation of the characteristics of international schools on school websites. Artefacts could be publicity brochures produced by a university or a school or a business organisation. The task is to undertake a detailed analysis of the values and ideological messages conveyed by the artefacts.

The characteristics of the methods are based on the following two criteria: the level of mediation and the degree of structure of the methods.

### *Level of mediation*

Level of mediation is the proximal/distal location of the researcher in relation to the issues under study. It is not very often discussed in the methodology literature. It is a continuum, from observation through asking questions to artefact analysis. Observation has a low level of mediation since the researcher is usually physically and temporally closer to the phenomena being studied: it is about the here and now of data collection.

Compared to observation, asking questions has a higher level of mediation. The questioning is likely to be about, say, an event, experience or process that has already taken place and is often removed in time and place from the researcher. For example, data collected via a questionnaire will be mediated by a respondent's understanding and interpretation of the questions. In addition, they will rely on their memory of the issue being investigated. Another source of mediation will be a respondent's ability to express their understanding on, say, the free-response area of the questionnaire, or their choice of tick box, to signify their responses.

## **PART FOUR • INNOVATIONS IN POSTGRADUATE SUPERVISION**

Artefact analysis has the highest level of mediation due to the intervening stages in the production of the artefact and its analysis. It starts with, for example, a situation, event or experience that is interpreted by an individual. An artefact is then created – maybe a written account – of the experience that is then available to an audience or readership. The researcher’s task is to present an understanding of the arguments, values or ideologies represented through the artefact. The researcher’s reception, interpretation and understanding of the arguments or values represented by the artefact are mediated by the production process. This removes the analysis even further from the original event, compared to observation and asking questions.

There will, of course, always be mediational issues associated with any method of data collection since there will always be an element of interpretation used by the researcher. It can be argued, however, that level of mediation is less severe in observation compared to asking questions. In turn, mediational issues are less severe in asking questions compared to those in artefact analysis.

### *Degree of structure*

A second characteristic of data collection methods is degree of structure that is, again, a continuum. At one extreme, the process is highly structured and, at the other, less structured. It applies in the FraIM to each of the three methods of data collection and is a common idea in the introductory methodology literature (for example, see Blaikie 2000; Bryman 2008; Robson 2002).

A low degree of structure in, for example, asking questions is characterised by open questions and a lower level of ‘pre-structuring’ of data. This approach results in a lower level of predictability of the data to be collected. An example might be the use of an informal interview based on asking only two open questions about participants’ views of a methodology workshop:

1. What activities and ideas did you find helpful for your own research practice?
2. What did you find less than helpful?

On the other hand, a higher degree of structure uses closed questions, where the data have a higher level of pre-structuring and therefore a higher level of predictability over what data will be collected. An example would be a questionnaire that asked for Strongly agree – Agree – Disagree – Strongly disagree responses. The consequences of the above for participants and the researcher are important for the data collection procedure and these are outlined further in Table 14.3.

CHAPTER 14 • DEVELOPING DOCTORAL RESEARCH SKILLS FOR WORKPLACE INQUIRY

TABLE 14.3 Degree of structure: Asking questions

Lower degree of structure	←————→	Higher degree of structure
Open questions		Closed questions
Lower level of pre-structuring of data	<b>Data</b>	Higher level of pre-structuring of data
Lower level of predictability over data to be collected	<b>Data</b>	Higher level of predictability over data to be collected
Responses to questions are not pre-determined.	<b>Participant</b>	Responses to questions will be pre-determined.
Increased choice of participant response during data collection	<b>Participant</b>	Limited choice of participant response during data collection
Higher level of participant control about how to respond to questions during data collection	<b>Participant</b>	Lower level of participant control about how to respond to questions during data collection
Lower level of researcher control during data collection	<b>Researcher</b>	Higher level of researcher control during data collection
Researcher has more choice over how the data are managed and analysed	<b>Researcher</b>	Researcher has less choice over how the data are managed and analysed

(Source: Plowright 2011:54)

Data

The next element of the FraIM concerns the data that will be collected as part of the research. There are two categories of data: numerical and narrative. Numerical data involve counting and measuring and are informed by the logical code or rules of mathematics (Guiraud 1975) or science (Chandler 2002). They are often seen as unambiguous, fixed and non-negotiable and are very often analysed using appropriate statistical testing. Narrative data draw on relatively more constructed or ‘poetic’ codes of meaning (Guiraud 1975). Such codes – or rules of representation – are based on the use of language or still and moving imagery. The data are often relatively more complex, ambiguous and uncertain.

The FraIM employs the terms ‘numerical’ and ‘narrative’ since they do not have the long pedigree, history and connotations of the ‘Q words’ that channel researchers into a set way of thinking about undertaking research. In addition, of course, both types of data can be generated and collected using each or all of the three types of data collection methods.

WARRANTABILITY OF RESEARCH

An important issue that permeates the planning and undertaking of any type of research is the warrantability (Toulmin 2003) of that research. This applies equally

## **PART FOUR • INNOVATIONS IN POSTGRADUATE SUPERVISION**

to scholarly research and work-based corporate research; both aim to provide a persuasive report of the implications of their findings and conclusions.

The FralM can be used to undertake research that is aimed at making evidentially supported claims about the cases without recourse to traditional paradigmatic perspectives confusingly based on the 'Q words'. The purpose is to undertake and report on research that leads to warrantable or justifiable conclusions. Such warrants or justifications rely on an inferential process based on Peirce's pragmatism, already mentioned earlier. The procedure progresses from abduction, through deduction and ending with induction as integral and necessary stages of all research inquiries (Plowright 2016).

This process attempts to explain the claims in terms of the empirical evidence, which is selected from the analysis of the research data collected from the cases, using appropriate methods, and drawing on the supporting contextual factors. The initial, tentative inferences made in the research report will inevitably be open to question. The researcher, therefore, will be expected to hold a sceptical and critical attitude to the ongoing interpretation of the findings (Gorard & Taylor 2004). This will necessitate considering alternative explanations based on counter-arguments for the warrants proposed. If the alternative explanations are more plausible and persuasive, then the initial conclusions can be queried and rejected. If the alternative explanations are rejected, however, then the warrant for the research can be accepted as the best and most appropriate available at the time.

The idea of warrantability does not ignore the importance of epistemological questions. However, use of the term and its underlying concepts does at least avoid the irresolvable arguments about truth resulting from a correspondence theory of ontological veracity. In its place, Peirce's pragmatism argues that truth involves a community of inquirers arriving at an agreement about an issue or understanding over a period of time. This can only be achieved by undertaking investigative inquiries that are systematic and logical and that produce warrantable results that can be shared, challenged and developed further by others. In other words, Peirce argued for a scientific method. Such a method can be more appropriately referred to as a rigorous and systematic approach that can be applied not only to scientific investigations but also to philosophy, day-to-day living and systematic social inquiry.

## **FINALLY**

Undertaking research is no easy task. It is made more difficult by the use of a traditional, paradigmatic approach that is still firmly embedded in the use of the 'Q words'. But addressing the problems that such an approach creates is not just a

## CHAPTER 14 • DEVELOPING DOCTORAL RESEARCH SKILLS FOR WORKPLACE INQUIRY

matter of terminology. It is about challenging the use of the concepts and structures that are associated with the traditions that permeate this approach to research. This chapter has discussed, all too briefly, an alternative way of structuring and reconceptualising the research process that goes some way towards mitigating against a number of misleading and erroneous ideas about research, embodied in the use of the 'Q words'. Plowright's (2011) FralM has the ability to make a contribution to meeting the needs of academic and workplace research that is both useful and methodologically rigorous. It is highly appropriate for undertaking research that contributes to the evaluation, development and improvement of practice. In addition, the FralM applies equally well to PhD and professional doctoral research or for more strategically purposed organisational inquiry that aims to get things done.

### REFERENCES

- Bassey M. 1999. *Case study research in educational settings*. Buckingham: Open University Press.
- Blaikie N. 2000. *Designing social research*. Cambridge: Polity.
- Bryman A. 2008. *Social research methods*. 3rd Edition. Oxford: Oxford University Press.
- Chandler D. 2002. *Semiotics: The basics*. London: Routledge.
- Clough P & Nutbrown C. 2002. *A student's guide to methodology*. London: SAGE.
- Creswell JW, Plano Clark VL, Gutmann ML & Hanson WE. 2003. Advanced mixed methods research designs. In: A Tashakkori & C Teddlie (eds). *Handbook of mixed methods in social and behavioral research*. London: SAGE. 209-240.
- Delanty G. 2001. *Challenging knowledge: The university in the knowledge society*. Buckingham: SRHE.
- Gorard S & Taylor C. 2004. *Combining methods in educational and social research*. Maidenhead: Open University Press.
- Guiraud P. 1975. *Semiology*. London: Routledge.
- Hammersley M. 1992. *What's wrong with ethnography?* London: Routledge.
- Hartshorne C & Weiss P (eds). 1932. *Collected papers of Charles Sanders Peirce, Vol 2, Elements of Logic*. Cambridge, MA: Harvard University Press.
- Hellawell D. 2006. Inside-out: Analysis of the insider-outsider concept as a heuristic device to develop reflexivity in students doing qualitative research. *Teaching in Higher Education*, 11(4):483-494.
- Herman C. 2010. Political transformation and research methodology in doctoral education. *Higher Education*, 59(4):489-506.
- Jansen JD. 2010. *The PhD study: An evidence-based study on how to meet the demands for high-level skills in an emerging economy*. Pretoria: ASSAf.
- Jansen JD. 2011. The quality of doctoral education in South Africa: A question of significance. *Perspectives in Education*, 29(3):139-146.

## PART FOUR • INNOVATIONS IN POSTGRADUATE SUPERVISION

- Le Grange L. 2012. Knowledge production in the 21st century: Some thoughts. *South African Journal of Higher Education*, 26(6):1131-1138.
- Morse JM. 2003. Principles of mixed methods and multimethod research design. In: A Tashakkori & C Teddlie (eds). *Handbook of mixed methods in social and behavioural research*. London: SAGE. 189-208.
- Plano Clark VL & Creswell J. 2008. *The mixed methods reader*. London: SAGE.
- Plowright A & Plowright D. 2008. Developing identities in South Africa: Alternatives to formal schooling for disadvantaged black children. Paper presented to the CCEAM Conference, Think Globally Act Locally: A Challenge to Education Leaders. Durban, South Africa. [Retrieved 18 January 2016] <http://www.emasa.co.za/files/full/A%20Plowright%20&%20D%20Plowright.pdf>
- Plowright D. 2011. *Using mixed methods: Frameworks for an integrated methodology*. London: SAGE.
- Plowright D. 2013. To what extent do postgraduate students understand the principles of mixed methods in educational research? *International Journal of Multiple Research Approaches*, 7(1):41-57.
- Plowright D. 2016. *Charles Sanders Peirce: Pragmatism and education*. New York: Springer.
- Punch KF. 2009. *Introduction to research methods in education*. London: SAGE.
- Reddy T. (2004) *Higher education and social transformation: South Africa case study*. Council on Higher Education: Pretoria.
- RSA DHET (Republic of South Africa. Department of Higher Education and Training). 2014. *National Qualifications Framework Act: Higher Education Qualifications Sub-Framework (HEQSF)*. Pretoria: Department of Higher Education and Training. November.
- Robson C. 2002. *Real world research*. 2nd Edition. Oxford: Blackwell.
- Simmonds S & Du Preez P. 2014. The centrality of the research question for locating PhD studies in the global knowledge society. *South African Journal of Higher Education*, 28(5):1607-1624.
- Stephens D. 2009. *Qualitative research in international settings: A practical guide*. London: Routledge.
- Symonds JE & Gorard S. 2010. Death of mixed methods? Or the rebirth of research as a craft. *Evaluation and Research in Education*, 23(2):121-136.
- Tashakkori A & Teddlie C. 2010. *Handbook of mixed methods in social and behavioral research*. London: SAGE.
- Toulmin SE. 2003. *The uses of argument*. 2nd Edition. Cambridge: Cambridge University Press.
- Trafford V & Leshem S. 2008. *Stepping stones to achieving your doctorate*. Maidenhead: OU Press.
- Treptow R. 2013. The South Africa PhD: Insights from employer interviews. *Perspectives in Education*, 31(2):83-91.
- Weber E. 2011. Policies shaping South African scholarship: Production and reproduction, or diversity in the pursuit of knowledge? *Oxford Review of Education*, 37(4):525-542.